# Utah Department of Transportation

## Asset Management

### Implementation Plan

June 1, 2004


**Prepared by:**

UDOT CONNECTING COMMUNITIES

**Asset Management Team**

# Table of Contents



# List of Figures

# A. Introduction

This document follows the UDOT Self-Assessment Survey Report, which outlines the need for improvement of asset management implementation within the Utah Department of Transportation.

Section A describes the Asset Management *methodology* that the UDOT envisions today and what it will attain in the future. Section B documents the major *goals, objectives, and strategies* to be addressed within a three-year time frame by TRANSMAT, which consists of key managers to the success of asset management. Finally, Section C outlines the *action plans*, which will resolve critical issues and direct UDOT towards achieving the goals that they have set.

## A.1 Mission Statement

Recognizing that Asset Management is a process or methodologies that UDOT can use to cost effectively deliver an efficient, effective, reliable and safe transportation service, the mission of UDOT Asset Management Implementation is:

- Put in place the plans, people, processes and products which enable UDOT to implement accepted asset management practices in a timely and cost-effective manner;

And

- Continually monitor and improve the asset management implementation over time;

So That

- Benefits to UDOT in the areas of Accountability, Communication, Risk Management and Financial Efficiency can be realized.

## A.2 Vision

In three to five year's time UDOT's Asset Management System will be:

- Integrated: where funding allocation decisions are broad-based across various asset categories;
- Automated: so that funding allocation decisions are generated in a more systematic, repeatable and objective manner;
- Expanded: to include other network assets other than just pavements and bridges;
- Accessible: to all UDOT stakeholders through the Internet or other communication media.

## A.3 Value Statement

The Asset Management Implementation Plan will subscribe directly with the purpose of the Utah Department of Transportation, which is stated as follows:

The Utah Department of Transportation exists as a government agency for the purpose of providing *mobility* and *access* to the people of Utah in a safe and economically efficient manner to support and connect Utah's communities. The Department is committed to accomplishing this purpose in a manner consistent with the principles of Context Sensitive Solutions. That is, all Department activities will:

- Address the transportation need
- Be an asset to the community and
- Fit in with the natural and built environment.

The Plan will also work in conjunction with UDOT's strategic goals, which have been labelled "The Final Four":

- Take Care of What We Have
- Make the System Work Better
- Improve Safety
- Increase Capacity

## A.4 Motto

Keep it simple!

Keep it growing!

Keep it Utah's!

# Asset Management Resource Allocation and Utilization

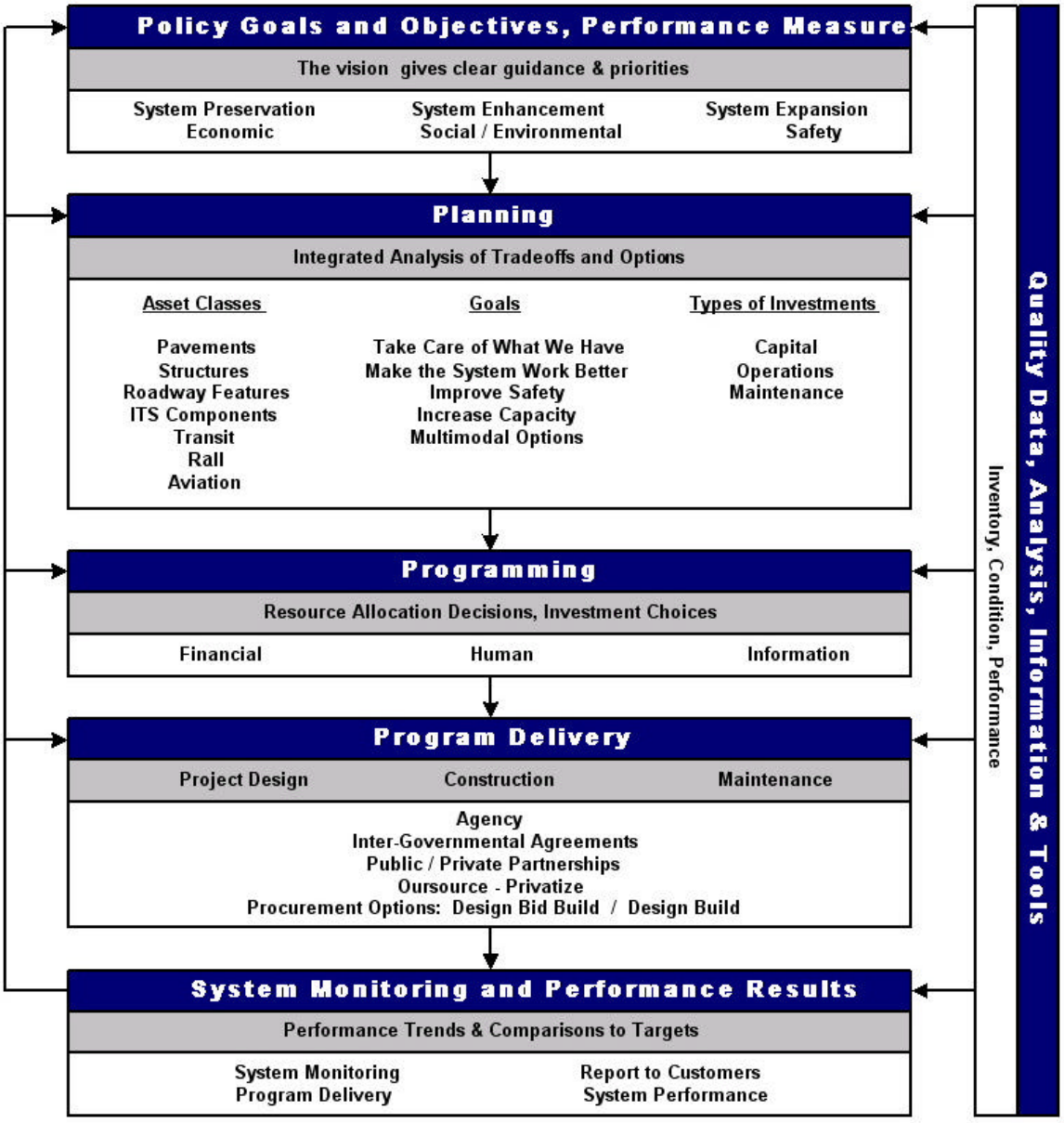


**Figure A1. Transportation Asset Management Framework**

## A.5 Narrative

This narrative provides a framework for transportation asset management. It has been adopted from material developed in NCHRP 20-24(11). Asset management is, at its core, a process of resource allocation and utilization. Resources in this context are interpreted broadly, encompassing financial, human, information, material, and equipment inputs to the management of the physical transportation infrastructure. The process of assigning or distributing these resources and applying them to UDOT's mission is likewise interpreted broadly, encompassing not only the traditionally understood functions in planning, program development, and budget approval, but also program delivery, system monitoring, data analysis, and input to policy formulation.

Figure A1 illustrates a strategic, integrated, systematic, and interdisciplinary approach to asset management for physical transportation infrastructure. The approach is cast as a resource allocation and utilization process. Note that the blocks in Figure A1 are general stages in the process; each block may comprise a number of individual processes and specific procedures, involving several organizational units, and the sequence in which they are performed may be more complicated than that implied in Figure A1. With this qualification, a discussion of each stage in the example follows.

- **Policy Goals and Objectives.** The process is driven by stated policy goals and objectives that are aligned with the "long-term vision." "Goals" are general statements that define priority areas. "Objectives" are actual quantifiable targets that can be used when analyzing alternatives and performing tradeoffs. For example, if enhanced safety is a goal, decreasing accidents by 10 percent over the next two years may be an objective to support that goal.
- **Integrated Analysis of Options and Tradeoffs.** Several processes and procedures associated with UDOT's planning and programming functions may be conducted at this stage. Among these are the following, as examples: to identify problems and needs within the context of policy objectives, assess available resources and set realistic targets, explore alternatives to address problems and needs within financial constraints, develop information on the technical characteristics, costs, and impacts of proposed approaches, define candidate projects or service levels, analyze their benefits, costs and other impacts, rank or prioritize candidates, and evaluate tradeoffs. These analyses are performed with a wide vision of available alternatives and potential tradeoffs in investment across, for example, modes, classes of physical infrastructure assets, and types of investments (e.g., capital improvements, operations, and maintenance). Figure A1 suggests a range of asset groups, policy objectives, and types of investments as examples.
- **Decisions on Applying Resources, Investment Choices.** Based upon the analyses above, decisions can be made on recommended capital projects and levels of service for maintenance and operations activities. Program approval finalizes these allocations of resources. Financial, human, and information resources are shown as examples in Figure A1; other resources (e.g., real estate, equipment and materials) are also included as appropriate.

- **Program Delivery.** With an approved allocation of resources, asset group programs can be implemented. All available options to deliver program projects and services are considered (e.g., in-house, outsourcing, intergovernmental agreements, etc.). Figure A1 illustrates example delivery methods, but others may also be included.
- **System Monitoring and Performance Results.** Since program implementation is a continual process, monitoring of system performance must be done periodically. The resulting information is used to inform and update other stages of the overall process, as illustrated in Figure A1. For example, trends in the condition or performance of the physical infrastructure may influence future policy formulation, or the priorities given to particular programs, projects, or services in resource allocation. Observed impacts of work zones may influence future decisions on methods and timing of program delivery.
- **Quality Data & Information**. Systems of physical transportation infrastructure are extensive, and the information to describe their inventory, condition, characteristics, performance, costs, and impacts is voluminous. Developing, maintaining, and updating the management systems, decision support tools, and data that are needed to describe the asset classes and to support the functions and decisions illustrated in Figure A1 is a continuing task. Ensuring that quality information can be provided to all organizational levels in a timely, accurate, and meaningful way to assist them in fulfilling their asset management responsibilities is likewise important to the process.

In expressing resource allocation and utilization in a strategic, integrated, and systematic way, Figure A1 suggests a number of "best practices":

- **The approach is policy-driven**. Applicable policies include those embodying system performance goals, and broader policies with important transportation implications, such as those specifying economic development or social or environmental initiatives. Other elements of resource allocation – e.g., planning criteria, prioritization factors, system performance measures – are consistent with these policy goals.
- **The analysis of options and tradeoffs is strategic, interdisciplinary, and integrated**. It encompasses a number of modes and their associated infrastructure, rather than focusing on individual classes of assets. Policy goals and objectives are explicitly considered in identifying modal, programming, or technological options to meet transportation needs. Tradeoffs among modes, programs, and technologies are conducted to seek the best performance at the lowest life-cycle cost. Quality information is applied throughout these processes.
- **Programs, projects, and services are delivered in the most effective way available**. Options for delivery are continually evaluated in terms of UDOT's own labor, financial, and information resources, and those of other providers in the public or private sectors.

- **Decisions at each step are based upon quality information**. The various steps in Figure A1 – policy formulation, establishment of goals and targets, and program planning, development, and delivery – are based upon current, complete, and accurate information on system condition, performance, and forecasted trends. Management systems and supplementary decision support tools (e.g., for benefit-cost analyses or trade-off analyses) are applied to these decisions, not as "black-box" solutions, but rather as aids to managers and executives in diagnosing problems and identifying the most effective projects and services. Value is placed on the capabilities and resources to provide this quality information.
- The information base for asset management is continually renewed, with feedback for updates and improvement. Working upward from the bottom in Figure A1 to consider the several feedback loops shown:
    - **Program delivery monitoring** documents whether projects and services have been delivered on time and budget, and identifies causes of problems that may require remedy;
    - **System performance monitoring** quantifies the results of past investment decisions, establishes baselines for future decisions, and identifies updates needed in project selection criteria;
    - **System and customer surveys** update information on current asset inventory, condition, and performance, and the cost and effectiveness of project treatments and service delivery methods for use in future analyses; and

**Performance trends and comparisons to targets** provide information on the status of program accomplishments, needed adjustments (either in areas of program emphasis, or in the target goals and objectives), and a basis for future policy formulation.

## A.6 Organizational Framework

Figure A2 shows the organizational framework for asset management within UDOT. It shows a very interactive and cyclical relationship between the Executive Team, the Asset Management Team, and Program Level Management. It is particularly important to note that all of the groups both give and receive information to/from each other. For example, the Planning Division *receives* information from the Asset Management Team through the cross asset analysis reports, yet the Planning Division *gives* information to the Asset Management Team, through input to the Executive Team, which directs the Asset Management Team, through goals and objectives. This bi-directional interaction assures strong consistency and communication throughout the entire process.

# Asset Management Organizational Framework

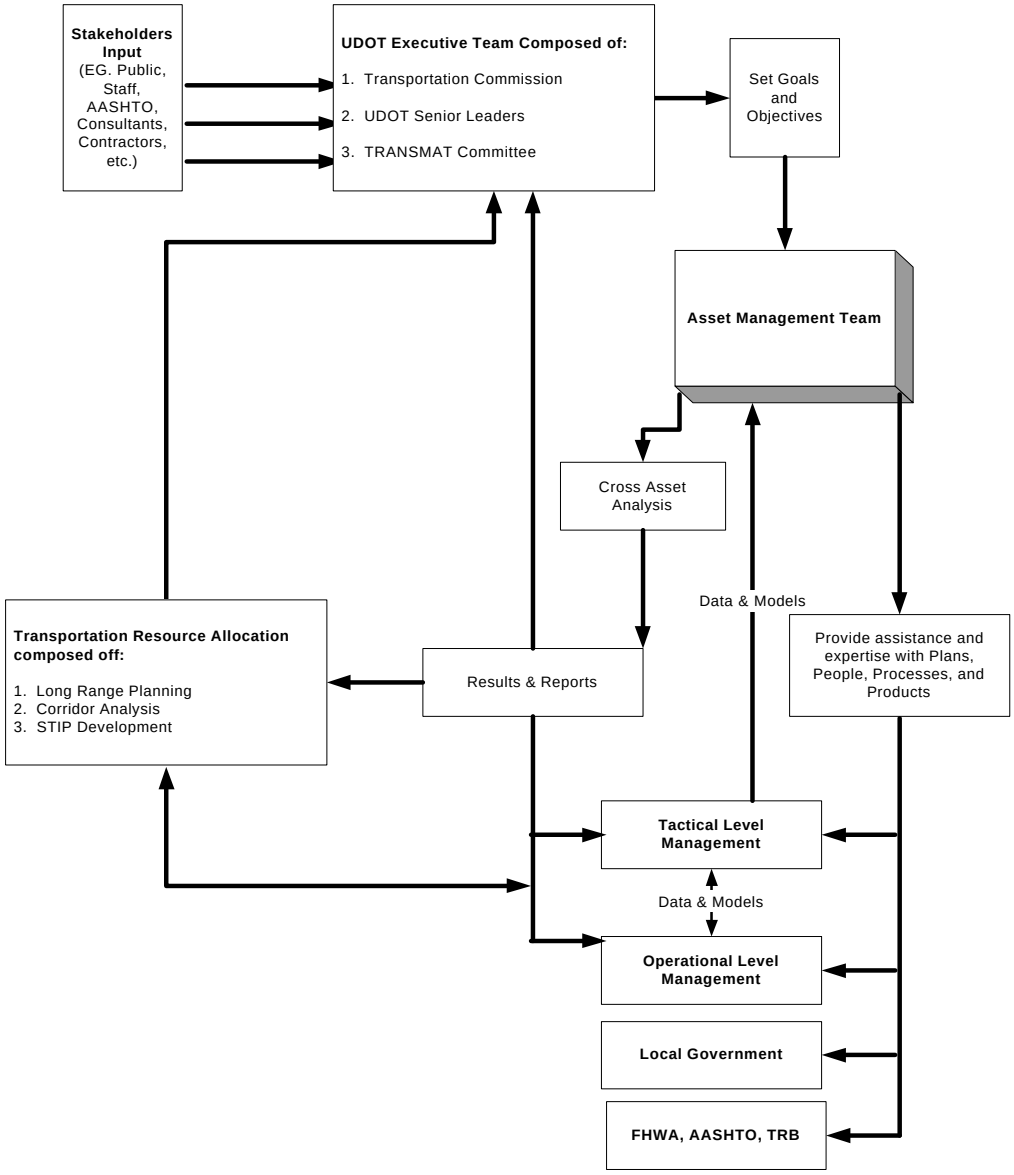


**Figure A2. Organizational Framework**

# UDOT Asset Management Three- Year Major Initiatives (2004 – 2006)

Asset Management Team Initiatives

- Coordinate and spearhead asset management initiatives throughout UDOT;
- Develop and implement an Asset Management Implementation Plan

Policy Guidance Initiatives

- Coordinate with TRANSMAT to develop, adopt, formalize and publicize official department policy within UDOT;
- Spearhead communication of official department policy with all UDOT stakeholders.

Planning and Programming Initiatives

- Coordinate with Planning and Programming and Program Delivery to ensure best practice asset management components are utilized wherever possible;

Decision Support Systems Initiatives

- Coordinate the implementation of the Asset Management Database and the Cross Asset Analysis within dTIMS CT;
- Coordinate with Asset Groups to ensure quality data and quality models are used in planning and programming at the strategic, tactical and operational levels.

# B. Goals, Objectives and Strategies

This section will outline the asset management goals, objectives and strategies to be included within UDOT Asset Management Implementation over the next three years. During goal development, some similarities were found and seven of the original twenty-seven goals were consolidated into others, and therefore are simply stated as "consolidated".

The goals are stated first, then the strategies, then the objectives in this manner:

## 0.0 Goal (applicable survey question numbers)

### 0.1 Objective

#### 0.1.1 Strategy

In order to show how the goals relate back to the Survey Report, a tie to the numbered survey questions is shown in grey text following the goal statement. The key indicator of implementation progress is *the narrowing of the gap between desired and existing levels of implementation over time* for all of the survey questions. The survey may be repeated in the future to monitor asset management implementation progress.

## 1.0 Publish an Asset Management Implementation Plan (A7, E1, E2)

### 1.1 The Plan must be completed by July 6, 2004

1.1.1 Complete action plans containing goals, objectives, strategies and assigned work.

### 1.2 The Plan must be published using traditional and electronic means so that it is readily available to all UDOT stakeholders.

1.2.1 Publish hard copies of the Plan for TRANSMAT and load an electronic copy to AM Web Site.

### 1.3 The Plan must have comprehensive, well-defined goals, objectives and strategies to guide Asset Management improvements in UDOT.

1.3.1 The AM Team will crosscheck the Plan with the Self Assessment Survey Report and the NCHRP Report.

## 2.0 Utilize an Asset Management Database to perform cross-asset analysis and monitor the inventory, condition and performance of assets within UDOT's jurisdiction. (D2, D3, D9, D12, D16, D17, D19, D20, D21, D22, D23, E3, E4, E6, E7)

### 2.1 The Database includes up-to-date and accurate condition and performance data, models and strategies on pavement and bridge assets by May 12, 2004.

2.1.1 Coordinate with Asset Groups to assure that data, models and strategies are included in the Database by May 3, 2004.

### 2.2 Budget distributions and performance targets resulting from the cross asset analysis must be delivered to TRANSMAT on July 6, 2004.

2.2.1 Perform cross asset analysis and publish a corresponding Report for the June TRANSMAT meeting.

2.2.2 Long Range Plan utilizes the budget distributions and performance targets resulting from the cross-asset analysis.

2.2.3 Tactical and Operational Asset Group preservation plans utilize budget distributions and performance targets resulting from the cross-asset analysis.

### 2.3 The Database must be easily accessed and used by Asset Groups by July 6, 2004.

2.3.1 Publish the Database on the AM Web Site in two formats: Excel (data only) and ArcView (data + visualization).

## 3.0 Consolidated

## 4.0 Consolidated

## 5.0 Consolidated

## 6.0 UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose. (D5, D6, D7, D8, D13, E8)

### 6.1 A review of the data used to support each of the asset group management systems will be completed by December 31, 2004.

6.1.1 Review data used in each asset group area to identify what data items are collected, what data items are used or needed for analysis, frequency of data collection, coverage of data collection, precision/level of detail, practices used to identify the location of data elements, practices used for quality control/quality assurance, how soon after collection data are available for analysis.

6.1.2 Assign a “data quality level” and an “analysis quality level” to each data element used for asset management.

### 6.2 A determination of the adequacy of data used in the strategic level (cross-asset) asset management analysis will be completed by January 6, 2005.

6.2.1 Conduct a formal study of what data will be needed for cross-asset analysis, and determine whether data currently available from the individual asset management systems are adequate for that purpose.

### 6.3 A formal data collection policy will be established for each of the asset group management systems by March 31, 2005.

6.3.1 Each Asset Group will define a data collection policy that specifies what to collect, frequency, sampling frequency (spacing of observations/tests), precision/detail, who will collect data (in house or contractor), and how individual elements will be uniquely identified.

6.3.2 Each Asset Group will develop and publish a Quality Control/Quality Assurance (QA/QC) Plan for the data used to support its system, by March 31, 2005.

### 6.4 Where identified as a need by the data review, data quality improvement plans will be developed for each asset group by April 14, 2005.

6.4.1 Each Asset Group will create a data quality improvement plan by April 14, 2005, for each data element of substandard quality, as identified by the data reviews performed at the tactical/operational and strategic levels.

## 7.0 UDOT business practices include an official policy outlining the Long Term Goals of the Transportation System. (A1, A2, A12)

### 7.1 The Policy identifies the Long Term Performance Goals for the Transportation System.

7.1.1 Develop a draft policy for the Long Term Goals of the Transportation System that addresses pavements, bridges, safety, and mobility.

### 7.2 The Policy specifies a long term, performance-based approach utilizing a life cycle cost approach.

7.2.1 The draft policy will be based on a life cycle cost approach.

### 7.3 The Policy specifically addresses customer satisfaction and expectations as a fundamental UDOT business practice.

7.3.1 Customer satisfaction will drive the goals that are set on a continual basis.

### 7.4 The Policy must be developed and implemented by June 16, 2004.

7.4.1 The mobility section is being evaluated by a Team and will be updated by the end of April. Once the draft is completed it will be presented to the Commission for comment and approval.

## 8.0 UDOT's business practices include customer expectations and customer satisfaction in all areas of Strategic Planning, Planning and Programming and Program Delivery. (A4, D4)

### 8.1 Preservation Policy and Long Range Plan specifically address customer satisfaction and expectations as a fundamental UDOT business practice.

8.1.1 Identify customers (rural and urban) and means to communicate with them.

8.1.2 Incorporate results from customer communications into Preservation Policy and Long Range Plan and establish a feedback loop to track changing expectations.

## 9.0 Utilize performance measures to aid resource allocation in conjunction with UDOT's strategic direction and policy favoring a performance-based life cycle cost approach. (A6, A8, D3)

### 9.1 Develop key performance measures for each objective within the UDOT Long Range Plan by August 31, 2004.

9.1.1 Finalize the key performance measures

9.1.2 Assign responsibility to populate the data

### 9.2 Develop a reporting system such as an "Annual Performance Report" to communicate current performance and future performance targets to all UDOT stakeholders.

9.2.1 Report the data through the Annual Performance Report

## 10.0 Consolidated

## 11.0 Consolidated

## 12.0 UDOT maintains an official policy describing the characteristics of roadways that are the responsibility of UDOT and periodically audits the transportation network to transfer assets to appropriate jurisdictions. (A13)

### 12.1 UDOT Transportation Network Policy addresses criteria for roadways to be included in the state highway system and the process for transferring assets to appropriate jurisdiction.

12.1.1 Follow the existing Utah Code, Title 72, and Chapter 4 as the Transportation Network Policy.

## 13.0 UDOT evaluates capital, operational and modal alternatives to meet system deficiencies. (B1, B2, B3, B12)

### 13.1 UDOT strategic planning and Long Range Plan includes sections on capital, operational and modal alternatives to meet system deficiencies.

13.1.1 TRANSMAT will review and approve budget distributions and performance targets.

13.1.2 Conduct a statewide Managed Lane Study to identify system wide opportunities for HOV, HOT, toll, reversible and other lane management techniques.

13.1.3 Understand travel demand model application in decision-making and have a clear understanding of the mode split decisions.

### 13.2 Conduct coordinated planning with transit agencies, bicycle/pedestrian coordinators and promote Transportation Demand Management (TDM) tools and techniques.

13.2.1 Conduct coordinated planning with transit agencies, bicycle/pedestrian coordinators and promote Transportation Demand Management (TDM) tools and techniques.

## 14.0 UDOT Long Range Plan incorporates strategic direction, established goals, objectives and performance measures. (B4, D17, D18)

### 14.1 UDOT Long Range Plan incorporates developed performance measures by July 6, 2005.

14.1.1 Utilize the recommended Performance Measures List from Goal 9.

## 15.0 UDOT's Planning and Programming operations will be based upon realistic projections of future revenues. (B5, B9)

### 15.1 Programming Section develops plausible projections of future revenues on a yearly basis prior to the Strategic Asset Management analysis prior to the Asset Group Preservation Planning Cycle.

15.1.1 As needed, work with the UDOT Comptroller Office to verify or adjust state revenue estimates as prepared by the GOPB and the Legislative Fiscal Analyst, to reflect the latest collection trends.

15.1.2 Utilizing apportionment and obligation limits contained in federal re-authorization legislation, prepare an estimate of available federal funds.

15.1.3 Extend the forecasts for state and federal funding to a period of ten years beyond the current funded program. Monitor actual available funding for variations from estimates of +/- 10 %. Keep the Transportation Commission informed regarding trends.

### 15.2 Development of statewide and MPO long-range plans and STIP is demonstrated to be consistent with realistic projections of future revenues.

15.2.1 Continue coordination efforts with the MPOs and FHWA to share financial forecast information and demonstrate fiscal constraint in both the long range planning and STIP development cycles.

## 16.0 UDOT's Planning and Programming operations will be based upon the strategic direction, established goals, objectives and performance measures. (B7, B8, D17, D18)

### 16.1 By April 2006, 90% of the projects added to the STIP must be directly aligned with strategic direction, goals, objectives and performance measures.

16.1.1 Long-range plan and TIP comply with the strategic direction and goals as recommended by the TRANSMAT and approved by the Transportation Commission.

16.1.2 Increase the awareness of the strategic direction and goals by developing a communication plan for these issues. Incorporate these efforts into the larger Asset Management (TRANSMAT) communication plan.

16.1.3 Develop performance measures and management tools that assist in the monitoring and adherence to established strategic goals.

16.1.4 All Program Development employees assure that their daily work complies with the strategic direction and goals, and they are accountable for work.

## 17.0 UDOT's Planning and Programming operations are based upon realistic estimates of costs, benefits and impacts on system performance. (B10, B11, C10, C11, D17)

### 17.1 By November 2005, at least 90% of the amount funded for projects added to the STIP must be based upon realistic estimates of costs, benefits and impacts on system performance.

17.1.1 Continue to improve project concept development tools and techniques to accurately scope and estimate costs.

17.1.2 Develop and implement tools necessary to evaluate the relative benefits and impacts that projects have on system performance

17.1.3 Define the benefits to be measured (user costs, safety improvements, life cycle costs, etc), and reach agreement on the relative weight associated with such measures.

17.1.4 As an interim measure, develop and implement project selection criteria that accounts for a variety of factors.

17.1.5 Focus planning staff efforts on increased analysis of transportation improvements in the more current portion of the long-range plan, working with the Regions to recommend projects that meet strategic objectives and system performance goals.

## 18.0 Maintain a listing of key performance measures to be used in Planning and Programming operations at the strategic, tactical and operational asset management areas. (D24)

### 18.1 The AM Web Site must contain the most recent List once it has been developed and approved by TRANSMAT.

18.1.1 As updates occur, the List will be updated and loaded to the AM Web Site

### 18.2 Key performance measures are relevant to customer and stakeholder satisfaction with transportation services.

18.2.1 Periodically review the List with TRANSMAT for relevancy.

## 19.0 UDOT investigates and reviews new technologies and approaches to program and project delivery on a continuing basis. (C1)

### 19.1 Project Development must perform an investigation and review of the latest technologies and approaches to program project delivery. This is an effort to programmatically apply innovative project delivery methods.

19.1.1 Assign the "Innovative Contracting Position" to coordinate and champion this goal. This position would chair an Innovative Project Delivery Methods group.

19.1.2 Perform a TRIS search of new technologies and approaches.

19.1.3 Attend TRB and specifically search new technologies and approaches for project delivery.

19.1.4 Innovative Project Delivery Methods group evaluates results of 19.1.2 and 19.1.3 above and identifies two to five strategies for further evaluation.

19.1.5 Innovative Project Delivery Methods Group coordinates with the Regions to identify and develop and evaluate pilot projects. Results of evaluations are reported to TRANSMAT and the best techniques are programmatically applied.

## 20.0 UDOT's project tracking system ensures project consistency from project conception phases through to the project completion phase. (C4, C5, C8, C9)

### 20.1 A Project File database will be developed and implemented that tracks project commitments made from the planning phase through final construction and into the maintenance of the facility.

20.1.1 The Project File QIT is evaluating strategies to develop a GIS-based database that tracks project commitments by route segment. The deliverable product, schedule, and resource requirements are currently under development.

## 21.0 Consolidated

## 22.0 Consolidated

## 23.0 Establish standards for location referencing within UDOT and obtain compliance with those standards. (D10, D11, D13)

### 23.1 Finalize the location reference document and make it policy.

23.1.1 Review location reference standards and develop a statewide policy governing all groups, regions, and systems by May 3, 2004.

### 23.2 Asset groups must modify their business practices and databases to utilize the location reference standards by December 31, 2004.

23.2.1 Make adjustments in management systems and databases to comply with location reference policy by December 31, 2004. Work with each system leader to establish responsibilities and processes and strategies to ensure all systems operate within the policy.

## 24.0 UDOT continually reviews deterioration modeling to ensure that the current models are accurate and reflect the actual deterioration lifecycle of assets under UDOT jurisdiction. (D15)

### 24.1 Upon completion of the data review by April 5, 2005, 2004, UDOT prepares a model review and development schedule.

24.1.1 Identify the assets that will require an analysis of model quality.

24.1.2 For those assets identified in 24.1.1, determine the appropriate level of model quality (AQL).

24.1.3 Create a plan to achieve the desired AQL.

### 24.2 Asset Groups must meet annually to review the accuracy and appropriateness of their analysis models.

24.2.1 Establish a review process to update the AQL per asset.

24.2.2 Establish a review process to determine the adequacy of tactical and operational level models for strategic level asset management analysis.

## 25.0 UDOT continually reviews the need for decision support tools throughout the department and implements those tools where appropriate. (D16, D17, D18, D19, D20)

### 25.1 TRANSMAT must have an awareness of the Decision Support Tools currently being used

25.1.1 The managers of each tactical and operational asset management system will make a periodic presentation to the TRANSMAT describing the decision support tool(s) used for that system.

25.1.2 The Asset Management Director will make a periodic presentation to the TRANSMAT describing the decision support tool used for cross-asset analysis and the decision-making framework that the tool supports.

### 25.2 A catalogue of Decision Support Tools will be available on the UDOT Asset Management Web Site by December 31, 2005

25.2.1 Set up a section of the UDOT Asset Management Web Site to describe each of the tactical, operational, and strategic asset management systems, models, and decision support tools and processes.

## 26.0 Maintain an Asset Management Web Site to disseminate information to all UDOT stakeholders. (A10, D12, E10, E11, E12)

### 26.1 Web Site must be operational by July 6, 2004.

26.1.1 AM Team will hold a meeting to discuss what content should be available and what should be downloadable, then assemble website and move to server by July 6th, 2004 with available content.

### 26.2 Web Site must be updated on a monthly basis; including updates to accomplishments in meeting policy objectives and other AM Implementation milestones.

26.2.1 AM Director will update the web site monthly with an AM Implementation Progress Report and other changes to content.

### 26.3 Web Site must disseminate documents as Acrobat (*.pdf) files, data as Excel (*.xls) files, and GIS information as ArcView projects or JPEG format.

26.3.1 AM Engineer will assure quality content and convert data or information to the appropriate format before being delivered to the AM Director.

### 26.4 Prevent data and internal documents from being distributed to the public.

26.4.1 Maintain an intranet web site for data and internal documents, with a link to it from the main Web Site.

## 27.0 Consolidated

# C. Action Plans

This section contains the action plans for asset management implementation. The work described in the action plans will help UDOT reach the goals described in Section B. Due to this importance, those who are working toward asset management implementation should be very familiar with this section, especially those who have specifically assigned tasks.

There are a total of 64 action plans and 178 action steps. In order to help show the overall picture of this long list of tasks, Figure C1 is provided. It gives the milestones, or key elements from that list of actions.

| # | Date | Milestone | Goal |
|---|---|---|---|
| | **2004** | | |
| 1 | 5/4/2004 | Finalize Location Reference Policy | 23 |
| 2 | 7/6/2004 | Publish final AM Implementation Plan | 1 |
| 3 | 7/6/2004 | Improved ten-year revenue projections complete | 15 |
| 4 | 7/6/2004 | Demo cross-asset analysis between bridge & pavement | 2 |
| 5 | 7/6/2004 | Asset Management Web Site operational | 26 |
| 6 | 8/3/2004 | Establish Long Term Policy Goals for Transportation System | 7,8 |
| 7 | 8/3/2004 | Planning & Programming operations are based upon the draft strategic direction, established goals, objectives and performance measures | 16 |
| 8 | 9/7/2004 | TRANSMAT recommends preservation funds distribution based on cross asset analysis (pavement and bridge only) | 2 |
| 9 | 9/7/2004 | Project Tracking Implementation Plan complete | 20 |
| 10 | 12/7/2004 | Key Performance Measures developed, approved, and publicized | 9 |
| | **2005** | | |
| 11 | 1/4/2005 | Location Referencing System conversion complete | 23 |
| 12 | 4/5/2005 | Adequate data and models are available for cross-asset analysis | 6, 24 |
| 13 | 5/3/2005 | TRANSMAT communicates results of cross-asset analysis to Planning Section and Tactical and Operational asset groups | 2 |
| 14 | 7/6/2005 | Draft Long Range Plan published, which uses cross-asset information and is based on strategic direction and goals | 13, 14 |
| 15 | 7/6/2005 | Tactical and operational groups use cross-asset information for preservation plans and are based on strategic direction and goals. | 2 |
| 16 | 11/1/2005 | Use the most effective project delivery methods available | 19 |
| 17 | 12/7/2005 | DSS tools implemented and catalogued | 25 |
| 18 | 12/7/2005 | Planning & Programming operations are based upon the final strategic direction, established goals, objectives and performance measures | 16 |
| 19 | 12/7/2005 | Planning & Programming operations are based on realistic estimates of costs, benefits, & impacts on system performance | 17 |
| | **2006** | | |
| 20 | 7/4/2006 | Location Reference Engine operational | |
| 21 | 12/31/2006 | Publish the final Long Range Plan (LRP). UDOT's LRP incorporates strategic direction, established goals, objectives, and performance measures | 14 |

**Figure C1. Implementation Milestones**

**Goal 1** Publish an Asset Management Implementation Plan

**Objective 1.1** The Plan must be completed by July 6, 2004.

**Strategy 1.1.1** Complete action plans containing goals, objectives, strategies and assigned work.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **1.1.1.1** | Assist TRANSMAT teams in completing their action plans, if requested | Kim Schvaneveldt & Glen Ames | Apr 20, 2004 | None |
| **1.1.1.2** | TRANSMAT teams present their action plans to TRANSMAT | Kim Schvaneveldt | Apr 20, 2004 | TRANSMAT |
| **1.1.1.3** | Finalize and incorporate action plans into Implementation Plan | Glen Ames | May 4, 2004 | None |
| **1.1.1.4** | Write and publish draft Implementation Plan | Glen Ames | May 31, 2004 | None |
| **1.1.1.5** | TRANSMAT reviews Implementation Plan | Kim Schvaneveldt | Jun 1, 2004 | TRANSMAT |
| **1.1.1.6** | Write and publish final AM Implementation Plan | Glen Ames | Jun 15, 2004 | None |

**Goal 1** Publish an Asset Management Implementation Plan

**Objective 1.2** The Plan must be published using traditional and electronic means so that it is readily available to all UDOT stakeholders.

**Strategy 1.2.1** Publish hard copies of the Plan for TRANSMAT and load an electronic copy to AM Web Site.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **1.2.1.1** | Deliver approved Plan in Word (*.doc) format to AM Director | Glen Ames | Jun 16, 2004 | None |
| **1.2.1.2** | Convert Plan to Acrobat (*.pdf) format and publish to web site. | Kim Schvaneveldt | Jun 18, 2004 | Alan McEwan |
| **1.2.1.3** | Print copies of Plan for TRANSMAT members | Glen Ames | Jun 18, 2004 | None |

**Goal 1** Publish an Asset Management Implementation Plan

**Objective 1.3** The Plan must have comprehensive, well-defined goals, objectives and strategies to guide Asset Management improvements in UDOT.

**Strategy 1.3.1** The Asset Management Team will crosscheck the Plan with the Self Assessment Survey Report and the NCHRP Report.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **1.3.1.1** | Crosscheck the Plan with the two reports and add necessary improvements | Glen Ames | Apr 30, 2004 | None |

**Goal 2** Utilize an Asset Management Database to perform cross-asset analysis and monitor the inventory, condition and performance of assets within UDOT's jurisdiction.

**Objective 2.1** The Database includes up-to-date and accurate condition and performance data, models and strategies on pavement and bridge assets by May 12th, 2004.

**Strategy 2.1.1** Coordinate with Asset Groups to assure that data, models and strategies are included in the Database by May 12th, 2004.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **2.1.1.1** | Coordinate sharing of condition and performance data, models and strategies between the Asset Groups and the AM Team. | Glen Ames | May 12, 2004 | Bridge and Pavement Asset Groups |
| **2.1.1.2** | Coordinate sharing of "information only" data, between the Asset Groups and the AM Team. | Glen Ames | May 12, 2004 | Bridge and Pavement Asset Groups |

**Goal 2** Utilize an Asset Management Database to perform cross-asset analysis and monitor the inventory, condition and performance of assets within UDOT's jurisdiction.

**Objective 2.2** Budget distributions and performance targets resulting from the cross asset analysis must be delivered to TRANSMAT on July 6, 2004.

**Strategy 2.2.1** Publish a Cross Asset Analysis Report for the July TRANSMAT meeting.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **2.2.1.1** | Perform demo cross asset analysis with dTIMS-CT | Glen Ames& Jeff Zavitsky | Jun 24, 2004 | None |
| **2.2.1.2** | Produce a draft cross asset analysis report and deliver it to TRANSMAT | Glen Ames | Jul 6, 2004 | None |
| **2.2.1.3** | Perform LRP cross asset analysis with dTIMS-CT | Glen Ames | Apr 19, 2005 | None |
| **2.2.1.4** | Produce a final cross asset analysis report and deliver it to TRANSMAT | Glen Ames | May 3, 2005 | None |

**Goal 2** Utilize an Asset Management Database to perform cross-asset analysis and monitor the inventory, condition and performance of assets within UDOT's jurisdiction.

**Objective 2.2** Budget distributions and performance targets resulting from the cross asset analysis must be delivered to TRANSMAT on July 6, 2004.

**Strategy 2.2.2** Long Range Plan utilizes the budget distributions and performance targets resulting from the LRP cross-asset analysis.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **2.2.2.1** | Coordinate budget distributions with transportation commission and communicate results to Planning Section | Carlos Braceras & Max Ditlevsen | May 17, 2005 | None |
| **2.2.2.2** | Apply budget distributions to LRP | John Thomas | Jul 1, 2005 | None |

**Goal 2** Utilize an Asset Management Database to perform cross-asset analysis and monitor the inventory, condition and performance of assets within UDOT's jurisdiction.

**Objective 2.2** Budget distributions and performance targets resulting from the cross asset analysis must be delivered to TRANSMAT on July 6, 2004.

**Strategy 2.2.3** Tactical and Operational Asset Group preservation plans utilize budget distributions and performance targets resulting from the cross-asset analysis.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **2.2.3.1** | Program Development Director communicates budget distributions and performance targets to Tactical Asset Groups | Max Ditlevsen | May 24, 2005 | None |
| **2.2.3.2** | Tactical Asset Groups communicate budget distributions and performance targets to Operational Asset Groups | Asset Group Leader | May 31, 2005 | None |

**Goal 2** Utilize an Asset Management Database to perform cross-asset analysis and monitor the inventory, condition and performance of assets within UDOT's jurisdiction.

**Objective 2.3** The Database must be easily accessed and used by Asset Groups by July 6, 2004.

**Strategy 2.3.1** Publish the Database on the AM Web Site in two formats: Excel (data only) and ArcView (data + visualization).

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **2.3.1.1** | Create two files for sharing the AM Database: Excel spreadsheet and ArcView project | Glen Ames | Jun 30, 2004 | None |
| **2.3.1.2** | Publish the two files to the AM web site | Kim Schvaneveldt | Jul 5, 2004 | None |

**Goal 6** UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose.

**Objective 6.1** A review of the data used to support each of the asset group management systems will be completed by December 31, 2004.

**Strategy 6.1.1** Review data used in each asset group to identify 1) what data items are collected, 2) what data items are used (or needed) for analysis, 3) frequency of data collection, 4) coverage of data collection, 5) precision/level of detail, 6) practice used to identify the location of data elements, 7) practices used for quality control/quality assurance, 8) how soon after collection data are available for analysis.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **6.1.1.1** | Create a document to identify information to be obtained for each data item collected for pavements, structures, safety, and mobility (see Attachment "A" for an example of a possible format). | Kim Schvaneveldt | May 14, 2004 | |
| **6.1.1.2** | Identify and assign personnel responsible to obtain information and complete document. | System Managers | Oct 5, 2004 | |
| **6.1.1.3** | Submit completed documents to Asset Management Team. | System Managers | Dec 31, 2004 | UDOT staff time |

**Goal 6** UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose.

**Objective 6.1** A review of the data used to support each of the asset group management systems will be completed by December 31, 2004.

**Strategy 6.1.2** Assign a "data quality level" and an "analysis quality level" to each data element used for asset management.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **6.1.2.1** | Provide definition of "Data Quality Level" and "Analysis Quality Level" to UDOT personnel. | Kim Schvaneveldt | Apr 30, 2004 | |
| **6.1.2.2** | Create a document to identify each data item collected for pavements, structures, safety, and mobility to identify the level of data quality and analysis quality for each item (see Attachment "B" for an example of a possible format). | Kim Schvaneveldt | May 14, 2004 | |
| **6.1.2.3** | Identify and assign personnel from each individual asset group area to obtain information and complete document. | System Managers | Dec 1, 2004 | |
| **6.1.2.4** | Submit completed documents to Asset Management team. | System Managers | Dec 31, 2004 | UDOT staff time |

**Goal 6** UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose.

**Objective 6.2** A determination of the adequacy of data used in the strategic level (cross-asset) asset management analysis will be completed by January 6, 2005.

**Strategy 6.2.1** Conduct a formal study of what data will be needed for cross-asset analysis, and determine whether data currently available from the individual asset management systems are adequate for that purpose.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **6.2.1.1** | Define a team with expertise in pavement, bridges, mobility, and safety. | Max Ditlevsen | May 14, 2004 | |
| **6.2.1.2** | Identify all existing resource allocation processes. | Team | May 31, 2004 | Input from various Divisions |
| **6.2.1.3** | Identify deficiencies and shortcomings in existing resource allocation processes | Team | Jun 30, 2004 | Input from various Divisions |
| **6.2.1.4** | Analyze and/or develop a proposed model for a resource allocation process. (an “ideal”) | Team | Aug 31, 2004 | Defined processes from other TRANSMAT teams |
| **6.2.1.5** | Identify data needs for model process. | Team | Nov 2, 2004 | |
| **6.2.1.6** | Compare to existing data and identify additional data needs. | Team | Jan 4, 2004 | |
| **6.2.1.7** | Prepare and publish report and present findings to TRANSMAT. | Team | Jan 6, 2005 | |

**Goal 6** UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose.

**Objective 6.3** A formal data collection policy will be established for each of the asset group management systems by March 31, 2005.

**Strategy 6.3.1** Each Asset Group will define a data collection policy that specifies 1) what to collect, 2) frequency (timing), 3) sampling frequency (spacing of observations/ tests), 4) precision/detail, 5) who will collect data (in house or contractor), and 6) how individual elements will be uniquely identified.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **6.3.1.1** | Assign UDOT personnel to develop data collection policies for pavements, structures, safety, and mobility, including: 1) what to collect, 2) frequency (timing), 3) sampling frequency (spacing of observations/tests), 4) precision/detail, 5) who will collect data (in house or contractor), 6) how individual elements will be uniquely identified, and 7) standard quantitative performance measurements. | Max Ditlevsen, Jim McMinimee, David Miles | May 14, 2004 | |
| **6.3.1.2** | Prepare draft data collection policy statements for pavements, structures, safety, and mobility, and present to TRANSMAT. | As assigned in Step 1 | Oct 29, 2004 | UDOT Staff time |
| **6.3.1.3** | Provide feedback on draft policy statements. | TRANSMAT | Nov 30, 2004 | |
| **6.3.1.4** | Make revisions based on feedback and obtain approval of final data collection policy statements from appropriate UDOT entity (Division, TRANSMAT, etc.). | As assigned in Step 1 | Jan 28, 2005 | UDOT Staff time |
| **6.3.1.5** | Publish approved data collection policies, and provide to data collection personnel | UDOT Senior Leadership | Mar 31, 2005 | |

**Goal 6** UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose.

**Objective 6.3** A formal data collection policy will be established for each of the individual asset management systems by March 31, 2005.

**Strategy 6.3.2** Each Asset Group will develop and publish a Quality Control/Quality Assurance (QC/QA) Plan for the data used to support its system, by March 31, 2005.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **6.3.2.1** | Identify teams to be responsible for the development of data collection QC/QA Plans for pavements, structures, safety, and mobility. | TRANSMAT | May 14, 2004 | |
| **6.3.2.2** | Develop a data collection QC/QA process for pavements, structures, safety, and mobility. Consult with the Structures Division for advice on how to accomplish this. | Teams | Dec 31, 2004 | UDOT staff time |
| **6.3.2.3** | Develop a data collection QC/QA scorecard for pavements, structures, safety, and mobility. Consult with the Structures Division for advice on how to accomplish this. | Teams | Mar 31, 2005 | UDOT staff time |

**Goal 6** UDOT will continually take appropriate action to ensure that data used for asset management analysis both at the strategic level and at the tactical or operational level are adequate for the intended purpose.

**Objective 6.4** Where identified as a need by the data review, data quality improvement plans will be developed for each asset group by April 14, 2005.

**Strategy 6.4.1** Each Asset Group will create a data quality improvement plan by April 14, 2005, for each data element of substandard quality, as identified by the data reviews performed at the tactical/operational and strategic levels (6.1.1 and 6.2.1).

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **6.4.1.1** | Based on the conclusions of the documents created for pavements, structures, safety, and mobility in Strategies 6.1.1 and 6.1.2, develop an improvement plan for each data item that is less than the desired level of data or analysis quality. | System Managers | Mar 31, 2005 | UDOT Staff time |
| **6.4.1.2** | Submit data improvement plans to appropriate UDOT entity (Division, TRANSMAT, etc.) for approval, including identification of "problem" data to be addressed. | System Managers | Apr 7, 2005 | |
| **6.4.1.3** | Obtain approval and publish data quality & analysis quality improvement plans. | System Managers | Apr 14, 2005 | |

**Goal 7** UDOT business practices include an official policy outlining the Long Term Goals of the Transportation System

**Objective 7.1** The Policy identifies the Long Term Performance Goals for the Transportation System.

**Strategy 7.1.1** Develop a draft policy for the Long Term Goals of the Transportation System that addresses pavements, bridges, safety, and mobility.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **7.1.1.1** | Update Long Term Policy Goals with the new mobility section as suggested by the Mobility Team. | Lloyd Neeley | Jul 1, 2004 | |

**Goal 7** UDOT business practices include an official policy outlining the Long Term Goals of the Transportation System

**Objective 7.2** The Policy specifies a long term, performance-based approach utilizing a life cycle cost approach.

**Strategy 7.2.1** The draft policy will be based on a life cycle cost approach.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **7.2.1.1** | Add some statements in the Long Term Policy Goal document regarding a life cycle cost approach for preservation. | Lloyd Neeley | Jul 1, 2004 | |

**Goal 7** UDOT business practices include an official policy outlining the Long Term Goals of the Transportation System

**Objective 7.3** The Policy specifically addresses customer satisfaction and expectations as a fundamental UDOT business practice.

**Strategy 7.3.1** Customer satisfaction will drive the goals that are set on a continual basis.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **7.3.1.1** | Update Long Term Policy Goals to address customer satisfaction. | Lloyd Neeley & Tom Hudachko | June 1, 2004 | |

**Goal 7** UDOT business practices include an official policy outlining the Long Term Goals of the Transportation System

**Objective 7.4** The Policy must be developed and implemented by June 16, 2004.

**Strategy 7.4.1** The mobility section is being evaluated by a Team and will be updated by the end of April. Once the draft is completed it will be presented to the Commission for comment and approval

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **7.4.1.1** | Identify and task the Mobility Team | Carlos Braceras | Completed | |
| **7.4.1.2** | Mobility Team completes their assignment | John Thomas | Completed | |
| **7.4.1.3** | Present Draft Policy to the TRANSMAT Team | Carlos Braceras | Completed | |
| **7.4.1.4** | Present Draft Policy to Transportation Commission for comment and approval | Carlos Braceras | Jun 16, 2004 | |

**Goal 8** UDOT's business practices include customer expectations and customer satisfaction in all areas of Strategic Planning, Planning and Programming and Program Delivery.

**Objective 8.1** Preservation Policy and Long Range Plan specifically address customer satisfaction and expectations as a fundamental UDOT business practice.

**Strategy 8.1.1** Identify customers (rural and urban) and means to communicate with them.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **8.1.1.1** | Establish statewide database identifying UDOT customers. | Tom Hudachko & John Thomas | Aug 27, 2004 | Time to create and maintain database |
| **8.1.1.2** | Measuring customer satisfaction and expectations will require focus groups, surveys and polls of identified customers. | Tom Hudachko, staff and consultant | Ongoing | Consultant to conduct focus groups and surveys. |
| **8.1.1.3** | Existing information from the Long Range Plan can also measure expectations and satisfaction | John Thomas | Ongoing | Time |

**Goal 8** UDOT's business practices include customer expectations and customer satisfaction in all areas of Strategic Planning, Planning and Programming and Program Delivery.

**Objective 8.1** Preservation Policy and Long Range Plan specifically address customer satisfaction and expectations as a fundamental UDOT business practice.

**Strategy 8.1.2** Incorporate results from customer communications into Preservation Policy and Long Range Plan and establish a feedback loop to track changing expectations.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **8.1.2.1** | Results from focus groups, surveys and polls should be reflected in any preservation policy UDOT creates. | Tom Hudachko | May 31, 2006 | Consultant to compile results from polls, focus groups |
| **8.1.2.2** | Existing customer information in the LRP should be incorporated into preservation policies | John Thomas | Jul 30, 2004 | Time |
| **8.1.2.3** | Customer expectations need to be documented and presented back to the public regularly to track changing expectations and level of satisfaction | Tom Hudachko, staff, John Thomas, consultant | Ongoing | Consultant to conduct follow-up surveys and polls. Staff time. |

**Goal 9** Utilize performance measures to aid resource allocation in conjunction with UDOT's strategic direction and policy favoring a performance-based life-cycle cost approach

**Objective 9.1** Develop key performance indicators for each objective within the UDOT Long Range Plan by August 31, 2004.

**Strategy 9.1.1** Finalize the Key Performance indicators

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **9.1.1.1** | Draft Performance Measures have been developed and reviewed by the Executive Director and senior staff | Carlos Braceras | Apr 15, 2004 | |
| **9.1.1.2** | A final buy-off meeting will be held on May 25th. | Carlos Braceras | May 25, 2004 | |

**Goal 9** Utilize performance measures to aid resource allocation in conjunction with UDOT's strategic direction and policy favoring a performance-based life-cycle cost approach

**Objective 9.1** Develop key performance indicators for each objective within the UDOT Long Range Plan by August 31, 2004.

**Strategy 9.1.2** Assign responsibility to populate the data

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **9.1.2.1** | Populate data for performance measures | Jim McMinimee, Dave Miles, Max Ditlevsen, and Chuck Larsen | Jul 30, 2004 | |
| **9.1.2.2** | Create format for Performance Measures. | Tom Hudachko and Linda Toy Hull | Aug 20, 2004 | |
| **9.1.2.3** | Create procedure for updating measures on a periodic basis | Carlos Braceras | Aug 20, 2004 | Wayne Rago |
| **9.1.2.4** | Publish Performance Measures | Carlos Braceras | Aug 31, 2004 | Wayne Rago |

**Goal 9** Utilize performance measures to aid resource allocation in conjunction with UDOT's strategic direction and policy favoring a performance-based life-cycle cost approach

**Objective 9.2** Develop a reporting system such as an "Annual Performance Report" to communicate current performance and future performance targets to all UDOT stakeholders

**Strategy 9.2.1** Report the data through the Annual Performance Report

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **9.2.1.1** | Present Performance Measures to the Legislature | Carlos Braceras | Oct 29, 2004 | John Njord |
| **9.2.1.2** | Present Performance Measures to UDOT, Consultants, and Contractors at the Engineer's Conference | Carlos Braceras | Nov 26, 2004 | |
| **9.2.1.3** | Put Performance Measures on UDOT Web site | Tom Hudachko | Nov 30, 2004 | |

**Goal 12** UDOT maintains an official policy describing the characteristics roadways that are the responsibility of UDOT and periodically audit the transportation network to transfer assets to appropriate jurisdictions.

**Objective 12.1** UDOT Transportation Network Policy addresses the criteria for roadways to be included in the state highway system and the process for transferring assets to the appropriate jurisdiction.

**Strategy 12.1.1** Follow the existing Utah Code, Title 72, and Chapter 4 as the Transportation Network Policy.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **12.1.1.1** | Periodically review existing state system to identify roadways that do not meet the proper criteria. | Planning Staff | Four year Schedule | None |
| **12.1.1.2** | Review requests from local agencies/Region Directors | Planning Staff | As Requested | None |
| **12.1.1.3** | Determine Conditions for transfer agreement | Local Agency, Region Director | As needed | None |
| **12.1.1.4** | Present to Transportation Commission for approval | Engineer for Transportation Planning | As necessary | None |
| **12.1.1.5** | Present system changes to Legislature for adoption in Code | Legislative Affairs Director | Nov each year | None |

**Goal 13** UDOT evaluates capital, operational and modal alternatives to meet system deficiencies.

**Objective 13.1** UDOT strategic planning and Long Range Plan includes sections on capital, operational and modal alternatives to meet system deficiencies.

**Strategy 13.1.1** TRANSMAT review and approve budget distributions and performance targets.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **13.1.1.1** | Review, modify if necessary and approve budget distributions used in the LRP. | Planning Team & TRANSMAT | Jun 1, 2005 | UDOT staff |

**Goal 13** UDOT evaluates capital, operational and modal alternatives to meet system deficiencies.

**Objective 13.1** UDOT strategic planning and Long Range Plan includes sections on capital, operational and modal alternatives to meet system deficiencies.

**Strategy 13.1.2** Conduct a statewide Managed Lane Study to identify system wide opportunities for HOV, HOT, toll, reversible and other lane management techniques.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **13.1.2.1** | Complete the Managed Lanes Study that identifies likely candidate solutions for corridors across the state. | John Thomas | Dec 1, 2004 | UDOT staff time and consultancy |

**Goal 13** UDOT evaluates capital, operational and modal alternatives to meet system deficiencies.

**Objective 13.1** UDOT strategic planning and Long Range Plan includes sections on capital, operational and modal alternatives to meet system deficiencies.

**Strategy 13.1.3** Understand travel demand model application in decision-making and have a clear understanding of the mode split decisions.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **13.1.3.1** | Establish an outline that defines what pieces of information UDOT needs to better understand how the travel demand model is used in decision-making. | John Thomas | Dec 1, 2004 | UDOT and MPO staff time |
| **13.1.3.2** | Meet with WFRC, MAG and UTA to develop an understanding of the mode splits and confirm concurrence on the data. | John Thomas | Dec 1, 2004 | UDOT and MPO staff time |

**Goal 13** UDOT evaluates capital, operational and modal alternatives to meet system deficiencies.

**Objective 13.2** Conduct coordinated planning with transit agencies, bicycle/pedestrian coordinators and promote Transportation Demand Management (TDM) tools and techniques.

**Strategy 13.2.1** Conduct coordinated planning with transit agencies, bicycle/pedestrian coordinators and promote Transportation Demand Management (TDM) tools and techniques.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **13.2.1.1** | Develop a contact list and prepare a schedule of meetings to initiate discussion on this strategy. | John Thomas & Kevin Nichol | Sep 1, 2004 | UDOT staff time |

**Goal 14** UDOT Long Range Plan incorporates strategic direction, established goals, objectives and performance measures.

**Objective 14.1** UDOT Long Range Plan incorporates developed performance measures by July 6, 2005.

**Strategy 14.1. 1** Utilize the recommended Performance Measures List from Goal 9.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **14.1.1.1** | Utilize the recommended list of performance measures that are developed in Goal 9. | John Thomas & Kevin Nichol | Nov 23, 2004 | UDOT |

**Goal 15** UDOT's Planning and Programming operations will be based upon realistic projections of future revenues.

**Objective 15.1** Programming Section develops plausible projections of future revenues annually or as needed prior to the Strategic Asset Management analysis and prior to the Asset Group Preservation Planning Cycle.

**Strategy 15.1.1** As needed, work with the UDOT Comptroller Office to verify or adjust state revenue estimates as prepared by the GOPB and the Legislative Fiscal Analyst, to reflect the latest collection trends.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **15.1.1.1** | Following Legislative Session, obtain State revenue estimates from GOPB and LFA offices. Review and adjust estimates for internal purposes. | Programming Staff Comptroller | Apr 30, 2004 | None |

**Goal 15** UDOT's Planning and Programming operations will be based upon realistic projections of future revenues.

**Objective 15.1** Programming Section develops plausible projections of future revenues annually or as needed prior to the Strategic Asset Management analysis and prior to the Asset Group Preservation Planning Cycle.

**Strategy 15.1.2** Utilizing apportionment and obligation limits contained in federal re-authorization legislation, prepare an estimate of available federal funds.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **15.1.2.1** | Based on current federal contract authorization and apportionment balances, forecast federal funds available within funding categories. | Programming Staff Comptroller Staff | May 31, 2004 | None |

**Goal 15** UDOT's Planning and Programming operations will be based upon realistic projections of future revenues.

**Objective 15.1** Programming Section develops plausible projections of future revenues annually or as needed prior to the Strategic Asset Management analysis and prior to the Asset Group Preservation Planning Cycle.

**Strategy 15.1.3** Extend the forecasts for state and federal funding to a period of ten years beyond the current funded program. Monitor actual available funding for variations from estimates of +/- 10 %. Keep the Transportation Commission informed regarding trends.

## Action Plan

| Action Step | Description | Responsible Person(s) | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **15.1.3.1** | Utilizing information from strategies above, develop or adjust the ten-year revenue estimates for both state and federal funds. Publish results and review with Commission | Programming Staff | Jun 30, 2004 | None |
| **15.1.3.2** | Monitor variances in actual state revenue collections. | Comptroller | Ongoing | None |

**Goal 15** UDOT's Planning and Programming operations will be based upon realistic projections of future revenues.

**Objective 15.2** Development of statewide and MPO long-range plans and STIP is demonstrated to be consistent with realistic projections of future revenues.

**Strategy 15.2.1** Continue coordination efforts with the MPOs and FHWA to share financial forecast information and demonstrate fiscal constraint in both the long range planning and STIP development cycles.

## Action Plan

| Action Step | Description | Responsible Person(s) | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **15.2.1.1** | Share information developed as ten year forecast with MPOs, the Joint Highway Committee, and the FHWA. | Programming Staff | Jul 30, 2004 ongoing | None |
| **15.2.1.2** | Evaluate impact of current projections on existing long range plans and TIPs | Planning Staff And STIP Coordinator | Ongoing | None |

**Goal 16** UDOT's Planning and Programming operations will be based upon the strategic direction, established goals, objectives and performance measures.

**Objective 16.1** By April 2006, 90% of the projects added to the STIP must be directly aligned with strategic direction, goals, objectives and performance measures.

**Strategy: 16.1.1** Long-range plan and STIP comply with the strategic direction and goals as recommended by the TRANSMAT and approved by the Transportation Commission.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **16.1.1.1** | Notify authors of LRP and STIP of any change to the existing UDOT strategic direction or goals | Engineer for Programming | When guidance changes | None |
| **16.1.1.2** | Make revisions to LRP to reflect change | Engineer for LRP | 30 days from notification | Existing staff |
| **16.1.1.3** | Make revisions to STIP to reflect change | STIP Coordinator | 30 days from notification | Existing staff |
| **16.1.1.4** | Present revised LRP and STIP to Transportation Commission for approval | Program Development Director | Commission meeting following STIP Workshop | None |

**Goal 16** UDOT's Planning and Programming operations will be based upon the strategic direction, established goals, objectives and performance measures.

**Objective 16.1** By April 2006, 90% of the projects added to the STIP must be directly aligned with strategic direction, goals, objectives and performance measures.

**Strategy: 16.1.2** Increase awareness of the strategic direction and goals by developing a communication plan for these issues. Incorporate these efforts into the larger Asset Management (TRANSMAT) communication plan.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **16.1.2.1** | Make the strategic direction and goals a key part of the web site information | Asset Management Engineer | When set or change made | None |
| **16.1.2.2** | Review strategic direction and goals with TRANSMAT periodically | Chairman of TRANSMAT | Quarterly and each change | None |
| **16.1.2.3** | Review at Division Retreats and Staff Meetings | Group Leaders Region Directors | At least annually | None |
| **16.1.2.4** | Publicize Accomplishments made | Group as assigned by Chairman of TRANSMAT | At Adoption of implementation plan | None |

**Goal 16** UDOT's Planning and Programming operations will be based upon the strategic direction, established goals, objectives and performance measures.

**Objective 16.1** By April 2006, 90% of the projects added to the STIP must be directly aligned with strategic direction, goals, objectives and performance measures.

**Strategy 16.1.3** Develop performance measures and management tools that assist in the monitoring and adherence to established strategic goals.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **16.1.3.1** | Establish step in STIP process to evaluate adherence of projects | Engineer for Programming | Aug 2, 2004 Prior to next STIP cycle | None |
| **16.1.3.2** | Develop standards to measure against | STIP Coordinator | Aug 2, 2004 Prior to next STIP cycle | Existing Staff |
| **16.1.3.3** | Evaluate each project in the STIP to determine alignment with strategic goals | STIP Coordinator | Aug 2, 2004 As established in 1 above | Existing Staff |
| **16.1.3.4** | Report results of % meeting criteria to the Transportation Commission | STIP Coordinator | Apr 22, 2005 Part of STIP Presentation | None |

**Goal 16** UDOT's Planning and Programming operations will be based upon the strategic direction, established goals, objectives and performance measures.

**Objective 16.1** By April 2006, 90% of the projects added to the STIP must be directly aligned with strategic direction, goals, objectives and performance measures.

**Strategy: 16.1.4** All Program Development employees assure that their daily work complies with the strategic direction and goals, and they are accountable for work.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **16.1.4.1** | Include consideration of strategic goals in performance plan process. | Each Employee | May 28, 2004 (2005 Performance plans) | None |
| **16.1.4.2** | Consider strategic goals in performance evaluations | Each Supervisor | May 31, 2005 (2005 Performance Plan evaluation) | None |

**Goal 17** UDOT's Planning and Programming operations are based upon realistic estimates of costs, benefits, and impacts on system performance.

**Objective 17.1** By November 2005, at least 90% of the amount funded for projects added to the STIP must be based upon realistic estimates of costs, benefits and impacts on system performance.

**Strategy 17.1.1** Continue to improve project concept development tools and techniques to accurately scope and estimate costs.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **17.1.1.1** | Gather and analyze historical data of Concept Reports. | Project Development, Regions | Jul 6, 2004 | None |
| **17.1.1.2** | Evaluate concept parameters vs. design (cost and scope based on type of projects). | Project Development | Aug 5, 2004 | None |
| **17.1.1.3** | Revise 08-1 Design Process, as needed based on findings. | Project Development | Sep 6, 2004 | None |
| **17.1.1.4** | Incorporate new estimate tools. | Project Development | Nov 1, 2004 | Depends on Steps 2 and 3 |
| **17.1.1.5** | Ensure project is programmed in recommended funding year or update project Concept. | Program Development | Applicable STIP Year | None |

**Goal 17** UDOT's Planning and Programming operations are based upon realistic estimates of costs, benefits, and impacts on system performance.

**Objective 17.1** By November 2005, at least 90% of the amount funded for projects added to the STIP must be based upon realistic estimates of costs, benefits and impacts on system performance.

**Strategy 17.1.2** Develop and implement tools necessary to evaluate the relative benefits and impacts that projects have on system performance.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **17.1.2.1** | Use existing tools (DTIMS, PONTIS, MMQA, Traffic and Safety (CARS)), to evaluate benefits. | Program Development, Structures, Maintenance, Traffic and Safety | Done | |
| **17.1.2.2** | Develop tools to evaluate Capacity Projects. | Program Development | Oct 19, 2004 | |
| **17.1.2.3** | Develop criteria to establish relative benefits of projects and impacts on system. | Program Development, Review & Approval by TRANSMAT | Mar 1, 2005 | |
| **17.1.2.4** | Develop tools to evaluate relative benefits and impacts on system. | Program Development | Aug 1, 2005 | |
| **17.1.2.5** | Implement the tools. | Program Development | Sep 12, 2005 Ongoing | |

**Goal 17** UDOT's Planning and Programming operations are based upon realistic estimates of costs, benefits, and impacts on system performance.

**Objective 17.1** By November 2005, at least 90% of the amount funded for projects added to the STIP must be based upon realistic estimates of costs, benefits and impacts on system performance.

**Strategy 17.1.3** Define the benefits to be measured (user costs, safety improvements, life cycle costs, etc), and reach agreement on the relative weight associated with such measures.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **17.1.3.1** | Identify and define benefits to be measured. | Team to be Identified | Jul 6, 2004 | None |
| **17.1.3.2** | Classify projects' type with similar benefits. | Team identified above | Jul 20, 2004 | None |
| **17.1.3.3** | Establish and agree on relative weight of projects' based type and measures. | TRANSMAT | Sep 8, 2004 | None |

**Goal 17** UDOT's Planning and Programming operations are based upon realistic estimates of costs, benefits, and impacts on system performance.

**Objective 17.1** By November 2005, at least 90% of the amount funded for projects added to the STIP must be based upon realistic estimates of costs, benefits and impacts on system performance.

**Strategy 17.1.4** As an interim measure develop and implement project selection criteria that accounts for a variety of factors.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **17.1.4.1** | Use "Plan for Every Section," LRP, Bridge Program, MMQA, CARS, etc. | Program Development, Structures, Maintenance Traffic and Safety, Regions | Done | None |
| **17.1.4.2** | Coordinate roadway sections with structures, and traffic and safety. | Region Directors | Done | None |
| **17.1.4.3** | Prioritize each group selection. | Program Development, Structures, Maintenance Traffic and Safety, Regions | Done | None |
| **17.1.4.4** | Compare list with threshold in the Long Range System Goals. | Program Development, Structures, Maintenance Traffic and Safety, Regions | Done | None |
| **17.1.4.5** | Adjust list based upon funding available. | Program Development, Structures, Maintenance Traffic and Safety, Regions | Done | None |
| **17.1.4.6** | Recommend projects. | | | None |

**Goal 17** UDOT's Planning and Programming operations are based upon realistic estimates of costs, benefits, and impacts on system performance.

**Objective 17.1** By November 2005, at least 90% of the amount funded for projects added to the STIP must be based upon realistic estimates of costs, benefits and impacts on system performance.

**Strategy 17.1.5** Focus planning staff efforts on increased analysis of transportation improvements in the more current portion of the long range plan, working with the Regions to recommend projects that meet strategic objectives and system performance goals.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **17.1.5.1** | Evaluate and prioritize LRP annually with input from stakeholders. | Program Development, Regions | Nov 1, 2005 | None |
| **17.1.5.2** | Develop "Purpose and Needs" and corridor analysis for selected projects. | Program Development, Regions | Nov 1, 2005 | Funding/Staff |

**Goal 18** Maintain a listing of key performance measures to be used in Planning and Programming operations at the strategic, tactical and operational asset management areas.

**Objective 18.1** The AM Web Site must contain the most recent List once it has been developed and approved by TRANSMAT.

**Strategy 18.1.1** As updates occur, the List will be updated and loaded to the AM Web Site.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **18.1.1.1** | Update Performance Measures List in Word Document and deliver to AM Director | Glen Ames | When list changes | None |
| **18.1.1.2** | Convert updated Performance Measures List to Acrobat format and deliver to AM Director | Glen Ames | When list changes | None |
| **18.1.1.3** | Put updated Performance Measures List on the AM Web Site | Kim Schvaneveldt | 1st of each month (if any changes) | Alan McEwan |

**Goal 18** Maintain a listing of performance measures to be used in Planning and Programming operations at the strategic, tactical and operational asset management areas.

**Objective 18.2** Key performance measures are relevant to customer and stakeholder satisfaction with transportation services.

**Strategy 18.2.1** Periodically review the List with TRANSMAT for relevancy.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **18.2.1.1** | Periodically review Performance Measures List with TRANSMAT | Kim Schvaneveldt | Yearly by Dec 31 | None |

**Goal 19** UDOT investigates and reviews new technologies and approaches to program and project delivery on a continuing basis.

**Objective 19.1** Project Development must perform an investigation and review of the latest technologies and approaches to program project delivery. This is an effort to programmatically apply innovative project delivery methods.

**Strategy 19.1.1** Assign the "Innovative Contracting Position" to coordinate and champion this goal. This person will chair an Innovative Project Delivery Methods group.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **19.1.1.1** | Place this goal into Innovative Contracting position's 2005 performance plan. | McMinimee | Jul 6, 2004 | |
| **19.1.1.2** | Solicit membership and install Innovative Project Delivery Methods Group. | Innovative Contracting | Aug 5, 2004 | |
| **19.1.1.3** | Hold kick off meeting with Group. Outline purpose, and develop work plans and schedules. | Innovative Contracting | Aug 17, 2004 | |

**Goal 19** UDOT investigates and reviews new technologies and approaches to program and project delivery on a continuing basis.

**Objective 19.1** Project Development must perform an investigation and review of the latest technologies and approaches to program project delivery. This is an effort to programmatically apply innovative project delivery methods.

**Strategy 19.1.2** Perform a TRIS search of new technologies and approaches.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **19.1.2.1** | Perform TRIS and/or other searches for innovative project delivery ideas. | Innovative Project Delivery Methods Group | Oct 1, 2004 | |
| **19.1.2.2** | Compile information and develop preliminary list of likely candidates. Update TRANSMAT. | Innovative Project Delivery Methods Group | Dec 8, 2004 | |

**Goal 19** UDOT investigates and reviews new technologies and approaches to program and project delivery on a continuing basis.

**Objective 19.1** Project Development must perform an investigation and review of the latest technologies and approaches to program project delivery. This is an effort to programmatically apply innovative project delivery methods.

**Strategy 19.1.3** Attend TRB and search out new technologies and approaches for project delivery.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **19.1.3.1** | Strategize TRB sessions for attending. | Innovative Project Delivery Methods Group. | Dec 1, 2004, then yearly | |
| **19.1.3.2** | Attend TRB. | Innovative Contracting. | Jan 28, 2005, then yearly | |
| **19.1.3.3** | Report to Innovative Project Delivery Methods Group. | Innovative Contracting. | Feb 8, 2005, then yearly | |

**Goal 19** UDOT investigates and reviews new technologies and approaches to program and project delivery on a continuing basis.

**Objective 19.1** Project Development must perform an investigation and review of the latest technologies and approaches to program project delivery. This is an effort to programmatically apply innovative project delivery methods.

**Strategy 19.1.4** Innovative Project Delivery Methods Group evaluates results from strategies 19.1.2 and 19.1.3, and identifies two to five strategies for further evaluation.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **19.1.4.1** | Identify and further develop two to five most promising technologies for possible implementation. | Innovative Project Delivery Methods Group. | Mar 1, 2005 | |
| **19.1.4.2** | Give report to TRANSMAT for discussion. TRANSMAT to give direction. | Innovative Project Delivery Methods Group | Apr 5, 2005 | |

**Goal 19** UDOT investigates and reviews new technologies and approaches to program and project delivery on a continuing basis.

**Objective 19.1** Project Development must perform an investigation and review of the latest technologies and approaches to program project delivery. This is an effort to programmatically apply innovative project delivery methods.

**Strategy 19.1.5** Innovative Project Delivery Methods Group coordinates with the Regions to identify and develop pilot projects to evaluate. Results of evaluations are reported to TRANSMAT, and the best techniques are programmatically applied.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **19.1.5.1** | Review current STIP projects and identify candidates to pilot the identified strategies. | Innovative Project Delivery Methods Group. | May 2, 2005 | |
| **19.1.5.2** | Meet with PMs and Region Directors to finalize the pilot projects to evaluate. | Innovative Project Delivery Methods Group | Jul 1, 2005 | |
| **19.1.5.3** | Develop individual project delivery strategies. Each will be unique. | PM with input from Innovative Contracting. | Aug 2, 2005, then ongoing | |
| **19.1.5.4** | Develop Project Development support plan for each individual project. | Innovative Contracting. | Sep 1, 2005, then ongoing | |
| **19.1.5.5** | Evaluate project delivery performance. | Innovative Project Delivery Methods Group | Oct 3, 2005, then ongoing | |
| **19.1.5.6** | Give report to TRANSMAT for discussion. TRANSMAT to give direction. | Innovative Project Delivery Methods Group | Oct 4, 2005, then ongoing | |

**Goal 20** UDOT's project tracking system ensures project consistency from project conception phases through to the project completion phase.

**Objective 20.1** A Project File database will be developed and implemented that tracks project commitments made from the planning phase through final construction and into the maintenance of the facility.

**Strategy 20.1.1** The Project File QIT is evaluating strategies to develop a GIS based database that tracks project commitments by route segment. The deliverable product, schedule, and resource requirements are currently under development.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **20.1.1.1** | Evaluate pre-packaged software (in development) to developing the database in house. | QIT | Jun 1, 2004 | |
| **20.1.1.2** | Develop an implementation plan. | QIT | Sep 1, 2004 | |

**Goal 23** Establish standards for location referencing within UDOT and obtain compliance with those standards

**Objective 23.1** Finalize the location reference document and make it policy.

**Strategy 23.1.1** Review location reference standards and develop a statewide policy governing all groups, regions, and systems by May 3, 2004.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **23.1.1.1** | Revise Location Reference Document into Policy Format and distribute to stake holders for review | Lloyd Neeley | Mar 1, 2004 | Location Reference Team, System Managers |
| **23.1.1.2** | Review Document and return comments to Lloyd Neeley | System Managers, TRANSMAT, Region and Districts | Apr 1, 2004 | |
| **23.1.1.3** | Finalize Policy and Distribute Approved Policy | Max Ditlevsen | May 3, 2004 | Community Relations |

**Goal 23** Establish standards for location referencing within UDOT and obtain compliance with those standards

**Objective 23.2** Asset groups must modify their business practices and databases to utilize the location reference standards by December 31, 2004.

**Strategy 23.2.1** Make adjustments in management systems and databases to comply with location reference policy by December 31, 2004. Work with each system leader to establish responsibilities, processes and strategies to ensure all systems operate within the policy.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **23.2.1.1** | Adjust management systems to comply with policy | System Manager | Dec 31, 2004 | ISS Technical Advisor<br>ISS Support |
| **23.2.1.2** | Develop schedule for entire conversion, and report monthly progress | System Manager<br>Location Reference Team | May 4, 2004<br>Report Monthly to TRANSMAT | Report on any required resources |
| **23.2.1.3** | Assist by providing required resources | TRANSMAT | Dec 31, 2004 | |

**Goal 24** UDOT continually reviews deterioration modeling to ensure that the current models are accurate and reflect the actual deterioration lifecycle of assets under UDOT jurisdiction.

**Objective 24.1** Upon completion of the data review by December 31, 2004, UDOT prepares a model review and development schedule.

**Strategy 24.1.1** Identify the assets that will require an analysis of model quality.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **24.1.1.1** | Schedule time at a TRANSMAT meeting for review of existing Asset Management models. | Kim Schvaneveldt | Feb 1, 2005 | ------ |
| **24.1.1.2** | System managers for pavements, structures, safety, and mobility present overviews of their models to the TRANSMAT. | System managers | Feb 2, 2005 | ------ |
| **24.1.1.3** | TRANSMAT selects which of the four systems require an analysis of model quality. | TRANSMAT | Feb 2, 2005 | ------ |

**Goal 24** UDOT continually reviews deterioration modeling to ensure that the current models are accurate and reflect the actual deterioration lifecycle of assets under UDOT jurisdiction.

**Objective 24.1** Upon completion of the data review by December 31, 2004, UDOT prepares a model review and development schedule.

**Strategy 24.1.2** For those assets identified in 24.1.1, determine the appropriate level of model quality (AQL).

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **24.1.2.1** | Review descriptions of model quality (AQL) provided by Deighton. (See Asset Management Glossary.) | All TRANSMAT members | Feb 8, 2005 | ----- |
| **24.1.2.2** | Select an appropriate level of model quality (AQL) for each asset group identified in 24.1.1. | TRANSMAT | Feb 8, 2005 | ----- |

**Goal 24** UDOT continually reviews deterioration modeling to ensure that the current models are accurate and reflect the actual deterioration lifecycle of assets under UDOT jurisdiction.

**Objective 24.1** Upon completion of the data review by April 5, 2005, UDOT prepares a model review and development schedule.

**Strategy 24.1.3** Create a plan to achieve the desired AQL.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **24.1.3.1** | Each Asset Group manager for the Asset Groups identified in 24.1.1 prepares a written plan for that asset group to achieve the target AQL identified in 24.1.2. | System Managers | Mar 29, 2005 | UDOT staff time |
| **24.1.3.2** | AQL Improvement Plans are presented to the TRANSMAT. | System Managers | Apr 5, 2005 | ----- |

**Goal 24** UDOT continually reviews deterioration modeling to ensure that the current models are accurate and reflect the actual deterioration lifecycle of assets under UDOT jurisdiction.

**Objective 24.2** Asset Groups must meet annually to review the accuracy and appropriateness of their analysis models.

**Strategy 24.2.1** Establish a review process to update the AQL per asset.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **24.2.1.1** | Identify a guiding body for each Asset Group. (e.g. PMET for pavements) | TRANSMAT | Dec 31, 2004 | ----- |
| **24.2.1.2** | Establish a model review process within each individual asset group. | Individual guiding bodies | Mar 1, 2005 | UDOT staff time |
| **24.2.1.3** | Document the individual asset group model review processes. | Individual guiding bodies | Apr 5, 2005 | UDOT staff time |
| **24.2.1.4** | Publish the model review processes to the UDOT Asset Management web page. | Kim Schvaneveldt | Apr 12, 2005 | |

**Goal 24** UDOT continually reviews deterioration modeling to ensure that the current models are accurate and reflect the actual deterioration lifecycle of assets under UDOT jurisdiction.

**Objective 24.2** Asset Groups must meet annually to review the accuracy and appropriateness of their analysis models.

**Strategy 24.2.2** Establish a review process to determine the adequacy of tactical and operational level models for strategic level asset management analysis.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **24.2.2.1** | Annually schedule time at a TRANSMAT meeting for each individual asset group manager to brief the TRANSMAT on revisions to models or model parameters. | Kim Schvaneveldt | Jul 6, 2004 | ----- |
| **24.2.2.2** | TRANSMAT annually confirms that parameters passed from individual systems to the Strategic (cross-asset) system are adequate for cross-asset analysis. | TRANSMAT | August 3, 2004 ongoing | ----- |

**Goal 25** UDOT continually reviews the need for Decision Support Tools throughout the department and implements these tools where appropriate.

**Objective 25.1** TRANSMAT must have an awareness of the Decision Support Tools currently being used.

**Strategy 25.1.1** The managers of each tactical and operational asset management system will make a periodic presentation to the TRANSMAT describing the Decision Support tool(s) used for that system.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **25.1.1.1** | Perform self-assessment on asset group management system. | System managers | Jan 3, 2005 | |
| **25.1.1.2** | Present self-assessment information to TRANSMAT | System managers | Mar 1, 2005 | |

**Goal 25** UDOT continually reviews the need for Decision Support Tools throughout the department and implements these tools where appropriate.

**Objective 25.1** TRANSMAT must have an awareness of the Decision Support tools currently being used.

**Strategy 25.1.2** The Asset Management Director will make a periodic presentation to the TRANSMAT describing the decision support tool used for cross-asset analysis and the decision making framework that tool supports.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **25.1.2.1** | Asset Management Director will compile information presented to by asset group system managers. | Kim Schvaneveldt | Mar 31, 2005 | |
| **25.1.2.2** | Asset Management Director will present to TRANSMAT an annual assessment of system | Kim Schvaneveldt | May 3, 2005 | |

**Goal 25** UDOT continually reviews the need for Decision Support Tools throughout the department and implements these tools where appropriate.

**Objective 25.2** A catalogue of Decision Support Tools will be available on the UDOT Asset Management Web Site by December 31, 2005.

**Strategy 25.2.1** Set up a section of the UDOT Asset Management Web Site to describe each of the tactical, operational, and strategic asset management systems, models, and decision processes.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **25.2.1.1** | Compile catalogue from all asset group management systems | Glen Ames | Oct 3, 2004 | |
| **25.2.1.2** | Publish DSS catalogue on Web site | Glen Ames | Dec 6, 2004 | Technical ISS assistance |

**Goal 26** Maintain an Asset Management Web Site to disseminate information to all UDOT stakeholders.

**Objective 26.1** Web Site must be operational by July 6, 2004.

**Strategy 26.1.1** AM Team will hold a meeting to discuss what content should be available and what should be downloadable, then assemble website and move to server by July 6, 2004 with available content.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **26.1.1.1** | Hold meeting regarding content of web site & what should be downloadable | Kim Schvaneveldt | May 31, 2004 | None |
| **26.1.1.2** | Begin website assembly with available content | Kim Schvaneveldt | Jun 15, 2004 | Alan McEwan |
| **26.1.1.3** | Move website to live server | Kim Schvaneveldt | Jun 29, 2004 | Alan McEwan |

**Goal 26** Maintain an Asset Management Web Site to distribute and disseminate information to all UDOT stakeholders.

**Objective 26.2** Website must be updated on a monthly basis including updates to accomplishments in meeting policy objectives and other AM implementation milestones.

**Strategy 26.2.1** Asset Management Director will update the web site monthly with an AM Implementation Progress Report and changes to content.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **26.2.1.1** | Determine AM Implementation milestones including policy objective attainments. | Glen Ames & Kim Schvaneveldt | May 21, 2004 | None |
| **26.2.1.2** | Update Implementation Progress Report then deliver to web site administrator | Glen Ames | As milestones are reached | None |
| **26.2.1.3** | Update web site with Implementation Progress Report | Kim Schvaneveldt | 1st of each month (if any changes) | Alan McEwan |
| **26.2.1.4** | Update web site with changes | Kim Schvaneveldt | 1st of each month (if any changes) | Alan McEwan |

**Goal 26** Maintain an Asset Management Web Site to distribute and disseminate information to all UDOT stakeholders.

**Objective 26.3** Web Site must disseminate documents as Acrobat (*.pdf) files, data as Excel (*.xls) files, and GIS information as ArcView projects or JPEG format.

**Strategy 26.3.1** Asset Management Engineer will assure quality content and convert data or information to the appropriate format before being delivered to the AM Director.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **26.3.1.1** | Conduct QA/QC on information or data before delivery to AM Director | Glen Ames | When data/info is received | None |
| **26.3.1.2** | Convert information or data to appropriate format before delivery to AM Director | Glen Ames | When data/info is received | None |

**Goal 26** Maintain an Asset Management Web Site to distribute and disseminate information to all UDOT stakeholders.

**Objective 26.4** Prevent data and internal documents from being distributed to the public.

**Strategy 26.4.1** Maintain an intranet web site for data and internal documents, with a link to it from the main Web Site.

## Action Plan

| Action Step | Description | Responsible Person | Required Completion Date | Required Resources |
|---|---|---|---|---|
| **26.4.1.1** | Create separate web site on the intranet for secure information, linked from main Web Site | Kim Schvaneveldt | Jun 29, 2004 | Alan McEwan |
| **26.4.1.2** | As data and internal documents become available load them to intranet web site | Kim Schvaneveldt | 1st of each month (if any changes) | Alan McEwan |

# D. Appendix

This section is supplied as an easy reference from Section B, which correlates goals to the questions.

## Policy Guidance

A1. Policy guidance supports preservation of existing transportation infrastructure assets

A2. Policy guidance encourages resource allocation based upon cost-effectiveness or benefit-cost analysis

A3. Policies support a long-term life-cycle approach to evaluating investment benefits and costs.

A4. Policy guidance considers customer perceptions and expectations

A5. Our customers contribute to the process that formulates policy goals and objectives

A6. Policy guidance on resource allocation allows our agency sufficient flexibility to pursue a performance-based approach

A7. Our agency has a business plan or a strategic plan with comprehensive well-defined goals and objectives to guide resource allocation

A8. Our agency's goals and objectives are linked to specific performance measures and evaluation criteria for resource allocation

A9. Our agency estimates the resources needed to accomplish particular objectives as part of policy development

A10. Our agency regularly communicates to customers and other stakeholders our accomplishments in meeting policy objectives

A11. Our agency works with political leaders and other stakeholders to present funding options and consequences as part of our budget proposals

A12. Policies are communicated in writing and are available for all employees and stakeholders to review at any time

A13. Policy clearly defines the characteristics of roadways that should be included in the state transportation network jurisdiction and those roadways that should be owned and maintained by other agencies

## Planning and Programming

B1. Our agency's long range plan includes and evaluation of capital, operational and modal alternatives to meet system deficiencies

B2. Capital versus maintenance expenditure tradeoffs are explicitly considered in the preservation of assets like pavement and bridges

B3. Capital versus operations tradeoffs are explicitly considered in seeking to improve traffic movement

B4. Our agency's long-range plan is consistent with currently established policy goals and objectives

B5. Our agency's long-range plan includes strategies that are consistent with plausible projections of future revenues

B6. Our agency's long-range plan provides clear and specific guidance for the capital program development process

B7. Our agency periodically updates its planning and programming methods to keep abreast of current policy guidance and critical performance criteria

B8. Criteria used to set program priorities, select projects and allocate resources are consistent with stated policy objectives and defined performance measures

B9. Our agency's programs are consistent with realistic projections of future revenues

B10. Our agency's programs are based on realistic estimates of costs, benefits, and impacts on system performance

B11. Project selection is based primarily on an objective assessment of relative merits and the ability to meet performance targets

B12. The preservation program budget is based upon analysis of at least life-cycle costing rather than exclusive reliance on worst first strategies

B13. A maintenance quality assurance study has been implemented to define levels of service for highway and transportation system maintenance

B14. Planning and programming periodically audits the UDOT transportation network to ensure that the network includes only those assets as defined in official policy regarding UDOT jurisdiction

B15. Planning and programming periodically transfers transportation network assets that do not meet the official policy for UDOT jurisdiction

**Project Delivery**

C1. Our agency periodically evaluates the use of alternative delivery options such as maintenance outsourcing, inter-governmental agreements, design-build-maintain and similar options

C2. Our agency has an incentive program for recognizing or rewarding outstanding performance in improving upon schedule, quality, and cost objectives

C3. Our agency solicits input from all affected parties to ensure that project scope is consistent with objectives of the project

C4. Our agency uses well-defined program delivery measures to track adherence to project scope, schedule, and budget

C5. Our agency has a well-established and functioning process to approve project changes and program adjustments

C6. When adding projects or changing project schedules, our agency considers effects on the delivery of other projects in the program

C7. Projects with significant changes to scope, schedule or cost are re-prioritized to ensure that they are still competitive in cost and performance

C8. Agency executives and program managers are regularly kept informed of program delivery status

C9. External stakeholders and policy-makers feel that they are sufficiently updtated on the full unit costs of construction activities

C10. Our agency maintains and uses information on the full unit costs of construction activities

C11. Our agency maintains and uses information on the full unit costs of maintenance activities

**Information and Analysis**

D1. Our agency has a complete and up-to-date inventory of our major assets

D2. Our agency regularly collects data on the condition of our assets

D3. Our agency regularly collects data on the performance of our assets such as (serviceability, ride quality, capacity, operations, and safety improvements)

D4. Our agency regularly collects customer perceptions of asset condition and performance

D5. Our agency continually seeks to improve the efficiency of data collection (e.g. through sampling techniques, automated equipment, and other methods appropriate to our transportation service)

D6. Our agency continually seeks to improve the quality and accuracy of data collected to make strategic, tactical and operational level decisions

D7. Our agency periodically reviews the data collection policy for each asset to determine the cost-effectiveness of the data being collected

D8. Our agency periodically reviews the data collection policy for each asset in various departments to reduce duplication and increase uniformity in data

D9. Agency managers and staff at different levels can quickly and conveniently obtain information they need about asset characteristics, location, usage, condition, and performance

D10. Our agency has established standards for location referencing that allow us to bring together information for different asset classes

D11. Our agency strictly enforces compliance to location reference standards across decision support tools and departments

D12. Our agency can easily produce reports and maps showing needs and deficiencies for different asset classes and programmed projects

D13. Our agency has established data standards to promote the consistent treatment of existing asset-related data and to guide development of future applications

D14. Information on actual work completed and costs is used to improve cost projection capabilities of our management systems at the strategic, tactical and operational levels

D15. Information on changes in asset condition over time is used to improve forecasts of asset life and deterioration in our management systems at the strategic, tactical, and operational levels

D16. Our agency uses asset management decision support tools to calculate and report actual system performance

D17. Our agency uses asset management decision support tools to identify system deficiencies or needs

D18. Our agency uses asset management decision support tools to rank candidate projects for the capital program

D19. Our agency uses asset management decision support tools to forecast future system performance given a proposed program of projects

D20. Our agency uses asset management decision support tools to forecast future system performance under different mixes of investment levels by program category

D21. Our agency monitors actual system performance and compares these values to targets projected for its capital preservation program

D22. Our agency monitors actual system performance and compares these values to targets projected for its capital improvement program

D23. Our agency monitors actual system performance and compares these values to projected values for its maintenance and operational program

D24. Our agency periodically distributes reports of performance measures relevant to customer and stakeholder satisfaction with transportation system and services

**Asset Management Implementation**

E1. To ensure success and guarantee the benefits of asset management, UDOT senior leaders will support and fund initiatives by TRANSMAT and the AM Team for a minimum of three years

E2. The AM Team will formulate an improvement strategy action plan to improve AM within UDOT. TRANSMAT will finalize, improve, fund and support improvement projects to accomplish this strategy

E3. The AM Team will be responsible for maintaining an asset repository to serve as the official asset register for UDOT

E4. The AM Team will be responsible for performing the cross-asset analysis and optimization to determine funding allocations at the strategic level

E5. The funding allocations that result from the cross-asset optimization will be used in the formulation of the long-range plan

E6. The funding allocations that result from the cross-asset optimization will be used in the formulation of the asset preservation plans at the tactical and operational levels

E7. AM Team will coordinate between the management systems to ensure tactical and operational programs are delivered in conjunction with strategic objectives

E8. AM Team will assist tactical and operational level areas in improving the data and analysis models used at the respective levels and then at the strategic level

E9. AM Team will coordinate the development and implementation of Key Performance Indexes (KPIs) to be used at all levels of analysis

E10. AM Team will coordinate the development and implementation of new analysis techniques and methodologies that can be used at all levels of analysis

E11. AM Team will coordinate the development and implementation of new analysis techniques and methodologies that can be used at all levels of analysis

E12. AM Team will liaison with FHWA and other transportation agencies to share information and knowledge to further the development of AM in UDOT and the U.S.

E13. AM Team will liaison with local governments to share information and knowledge to further the development of AM in Utah